5

Physicochemical study of oil fractions from crude oil. I. Method and experimental technique. V. Kello, V. Palo, and A. Tkáč (Slovenská vysoká škola techn., Bratislava, Czech.). Chem. zvesti 13, 265–71(1959)(German summary). —Lubricating oil distillates from Gbely (Slovakia) crude oil were evaluated as raw materials for cable oil by means of the n-d-mol. wt. method, elementary analysis, viscosity and viscosity index, dielec. losses and dielec. const., insulating properties, and infrared absorption spectroscopy. All tests were applied to chromatographic fractions of the distillates. For kinetic studies by infrared spectroscopy, oxidation of a thin hydrocarbon layer (1 mm.) was used.   Jan Micka

KELLO, V.

Distr: 4E2c(j)/4E3b

Mean life of free radicals in solid natural rubber. A. Tkáč and V. Kelló (Slovakian Coll. Technol., Bratislava, Czech.). *Trans. Faraday Soc.* 55, 1211-20(1960); cf. *C.A.* 49, 6039λ; 50, 5317i, 16337d.—Free radicals were generated in solid films of natural rubber 20–30 μ thick on NaCl plates when heated in an autoclave for ~1000 min. at 140°. The mean life of the free radical was detd. by a kinetic analysis of the subsequent oxidn. reactions. Radicals of relatively long life formed only in the presence of natural antioxidants. In the absence of antioxidants, heat-treatment reduced the sensitivity towards oxidn., a result which was explained by cross-linking with rapid removal of the radicals.

Victor R. Deltz

KRCMERY, Vladimir; FERENCIK, Miroslav; KELLO, Vojtech

Activity of the hydroperoxydases in brucellosis. Biologia 14 no.12:
924-932 '59.   (EEAI 9:7)

1. Statny vedecky veterinarni ustav, Bratislava a Katedra
fyzikalnej chemie Slovenskej vysokej skoly technickej, Bratislava
        (BRUCELLOSIS)
        (HYDROPEROXIDASES)

TKAC, Alexander, doc., dr., inz.; KELLO, Vojtech, prof., dr.

Problem of polyisoprene stability from the viewpoint of radical processes.   Chem zvesti 17 no.4:237-247 '63.

1. Vedecky ustav pri Katedre fyzikalnej chemie, Slovenska vysoka skola technicka, Bratislava, Kollarovo namesti 2.

CZECHOSLOVAKIA

TKAC, A.; KELLO, V.; HRIVIKOVA, J.

Dept. of Physical Chemistry, Slovak Technical Univ., Bratislava (for all)

"On the theory of macroradical termination. Part 4: Mechanism of termination of macroradicals."

KHASYMSKI, M.; KEL'M, M. [Kelm, M.]; SHIDLOVSKAYA, S. [Szydlowska, S.];
GORAK, B. [Horak, B.]; RIKHTER, V.

From public reports of the heads of the delegations of socialist
countries. Tekh. est. 2 no.8:7-11 Ag '65.   (MIRA 18:9)

1. Direktor TSentra promyshlennoy estetiki, khudozhestvennogo
proyektirovaniya i konstruirovaniya Narodnoy Respubliki Bolgarii
(for Khasymaki). 2. Predsedatel' Soveta po khudozhestvennomu kon-
struirovaniya Germanskoy Demokraticheskoy Respubliki (for Kel'm).
3. General'nyy sekretar' Soveta po tekhnicheskoy estetike pri
Predsedatele Soveta Ministrov Pol'skoy Narodnoy Respubliki (for
Shidlovskaya). 4. Zamestitel' ministra promyshlennosti tovarov
shirokogo potrebleniya, zamestitel' predsedatelya Soveta po
tekhnicheskoy estetike Chekhoslovatskoy Sotsialisticheskoy
Respubliki (for Gorak). 5. Direktor TSentra khudozhestvennogo
konstruirovaniya v Zagrebe Sotsialisticheskoy Federativnoy
Respubliki Yugoslavii (for Rekhter).

KEL'M, M. [Kelm, M.]

Industrial design at the Leipzig Fair of 1965. Tekh. est. 2 no.8:
28-31 Ag '65.   (MIRA 18:9)

1. Predsedatel' Soveta po khudozhestvennomu konstruirovaniya;
direktor TSentral'nogo instituta khudozhestvennogo konstruirovaniya
Germanskoy Demokraticheskoy Respubliki.

MAS'KO, N.Ye., inzh.; KEL'MA, L.Ya., inzh.

A new evaporator cooler for thermal deaerators. Elek. sta. 33
no.8:71 Ag '62.   (MIRA 15:8)
                        (Steam power plants)

PETROV, D.G., dotsent, direktor L'vovskogo nauchno issledovatel'skogo instituta
perelivaniya krovi.; LYSENKO, E.V.; KEL'MAN, A.A., kandidat meditsinskikh
nauk, direktor L'vovskogo oblastnogo onkologkcheskogo dispansera.

Plasmotherapy of inflammatory diseases of the female genitalia. Akush.i
gin. no.2:45-47 Mr-Ap '53.   (MLRA 6:5)

1. L'vovskiy nauchon-issledovatel'skiy institut perelivaniya krovi. 2.
L'vovskiy oblastnyy onkologicheskiy dispanser. (Gynecology) (Blood--
                                                          Plasma)

KEL'MAN, A.A., kandidat meditsinskikh nauk [deceased]; KRUKIYER, M.D.
(L'vov)

Antitoxic function of the liver in cancer of the cervix uteri dur-
ing radiotherapy. Klin.med. 33 no.4:85 Ap '55.   (MLRA 8:7)

1. Iz L'vovskogo oblastnogo onkologicheskogo dispansera (glavnyy
vrach - kandidat meditsinskikh nauk A.A.Kel'man)
        (ROENTGEN RAYS, effects,
            on liver funct., in ther. of cancer of cervix)
        (CERVIX, UTERINE, neoplasms,
            ther., x-rays, liver funct. in)
        (LIVER FUNCTION TESTS, in various diseases,
            cancer of cervix, in x-ray ther.)

KRYLOVSKIY, S.S.; KEL'MAN, A.B.; OSTROVSKIY, A.N.

Firing refractory raw materials in a fluidized bed. Ogneupory 29
no.1:13-17 '64.
(MIRA 17:3)

1. Gosudarstvennyy institut po proyektirovaniyu predpriyatiy po
proizvodstvu stali.

KEL'MAN, A.B.; PETROVA, Yu.I.; NUZHNYY, N.A.; PERESADA, M.P.

Mixing burner for natural gas. Ogneupory 30 no.8:8-9
'65.   (MIRA 18:8)

1. Nauchno-issledovatel'skiy i proyektnyy institut metallurgicheskoy
promyshlennosti (for Kel'man, Petrova). 2. Shamotnyy zavod "Krasnaya
Zvezda" (for Nuzhnyy, Peresada).

VOLOVINSKAYA, V., kand. tekhn. nauk; RUBASHKINA, S.; POLETAYEV, T.;
        KEL'MAN, B.; MERKULOVA, V.

Improving the quality of hams during salting with the use of
phosphates and sodium ascorbates and glutamates. Mias. ind. SSSR.
30 no.4:48-50 '59.   (MIRA 12:12)

1.Vsesoyuznyy nauchno-issledovatel'skiy institut myasnoy promyshlen-
nosti.

                        (Meat, Salt)

VOLOVINSKAYA, V., kand.tekhn.nauk; KEL'MAN, B.

Determination of the moisture absorption capacity of meat. Mias.
ind. SSSR 31 no.6:47-48 '60.   (MIRA 13:12)
                    (Meat)   (Moisture)

KEL'MAN, B.M.

H-3

Category : USSR/Electrons - Electronic Optics

Abs Jour : Ref Zhur - Fizika, No 1, 1957, No 1662

Author   : Baranovskiy, S.N., Kaminskiy, D.L., Kel'man, B.M.
Title   : Double Magnetic Slit

Orig Pub : Zh. tekhn. fiziki, 1955, 25, No 11, 1954-1956

Abstract : Description of the construction and of several characteristics of a
           system consisting of two magnetic slits. Experiments have shown that
           a double magnetic slit deflects and focuses an electric beam, forming
           a linear image of a point source.

Card   : 1/1

OSIPOVA, Ye.N.; LIKESH, Yar.; KEL'MAN, B.M.

Evaluating the performance of fluidization kilns. Trudy LTI
no.54:129-134 '59. (MIRA 13:8)
(Fluidization--Equipment and supplies)

VOLOVINSKAYA, V.P., kand.tekhn.nauk; KEL'MAN, B.Ya., mladshiy nauchnyy
sotrudnik

Effect of the technological factors and various surfaces on
the adhesive properties of the sausage meat. Trudy VNIIMP
no.14:10-20 '62.   (MIRA 16:8)

(Sausages)

VOLOVINSKAYA, V.P., kand. tekhn. nauk; KEL'MAN, B.Ya., mladshiy nauchnyy
sotrudnik

Developing the method for determining moisture absorbability
of meat. Trudy VNIIMP no.11:128-138 '62.   (MIRA 18:2)

VOLOVINSKAYA, V.P., kand. tekhn. nauk; KEL'MAN, B.Ya.,mladshiy nauchnyy
        sotrudnik

    Use of the penetration method for determining the consistency
    of back fat. Trudy VNIIMP no.12:149-156 '62.   (MIRA 18:2)

KEL'MAN, E. I.

KEL'MAN, E. I.

Ob otvetstvennosti vozdushnogo perevozchika za vred i ubytki.
(In: Voprosy vozdushnogo prava, v. 1. Moskva, 1927. p. 179-219)
Title tr.: Liability of air carriers for losses and damages.

DLC: Law Library

SO: Aeronautical Sciences and Aviation in the Soviet Union, Library of
Congress, 1955.

KEL'MAN F. N.

PROCESSES AND PROPERTIES INDEX

18

The absorption of nitric oxide by sulfuric acid. K. M. Malin, F. N. Kel'man and M. M. Uspenskaya. *J. Chem. Ind.* (U. S. S. R.) 15, No. 4, 25-7 (1938).—NO is absorbed by H_2SO_4 as an equiv. mixt. with NO_2 and the presence of excess NO has no effect on the rate of absorption.

H. M. Leicester

METALLURGICAL LITERATURE CLASSIFICATION

18

PROCESSES AND PROPERTIES INDEX

The desorption of nitrogen oxides from nitrosylsulfuric acid in sulfuric acid. K. M. Malin, F. N. Kel'man, M. M. Milovanova and M. M. Uspenskaya. J. Chem. Ind. (U. S. S. R.) 19, No. 6, 24 M(1942). The rate of desorption of N_2O_3 when a stream of N_2 is passed through the soln. depends on the rate of decompn. of nitrosylsulfuric acid and the rate of diffusion of N_2O_3 through the air interface. The first factor is the most important under ordinary conditions, but at very high N_2O_3 concn. the rate of diffusion becomes more important. The presence of a small amt. of HNO_3 greatly increases the rate of desorption.

H. M. Leicester

A S A · S L A   METALLURGICAL LITERATURE CLASSIFICATION

PROCESSES AND PROPERTIES INDEX

CA

18

Caking of pyrite and its prevention. K. M. Malin, F. N. Kel'man, and A. S. Grigor'eva. *Khim. Prom.* 1947, No. 2, 14-15.—Tests were run to det. the temp. at which pyrite start caking, the loss of S through caking, and means of preventing it. The several kinds of pyrite tested caked at different temps. The caked material contained more FeS than the material that did not cake in all instances but in varying degree. Of the various addns. tried, clay (>15%) and MgO (>5%) reduce caking appreciably. Boiler clinker (>10%) prevented caking entirely. However, the use of additives is undesirable, since it interferes with the subsequent use of the pyrite cinders. Mixing of various kinds of pyrite is effective and is recommended if possible. Caking in most instances is prevented if the temp. in any of the hearths exceeds 800°. M. Hoseh

A.S.M.-S.L.A. METALLURGICAL LITERATURE CLASSIFICATION

KEL'MAN (___) F. N.

USSR/Pyrites
    Furnaces – Design

"Tendency of Pyrites to Form Clinkers and Methods of Elimination," Malin, Kel'man, Grigor'eva, 2 pp

"Khimi Promysh" No 3

Discusses susceptibility of various types of ores (Revdinsk, Belevinsk, etc.) , and the process of burning out sulfur in the Karelo-Finnish streaked pyrites at various temperatures. A new type of furnace should be perfected to burn out clinkers at a temperature of about 1100°.

PA 10T35

Sci Res Inst. po udobrenijam) i insektofungisidam)

AMELIN, A.G.; BALEYEV, A.V.[deceased]; BRUTSKUS, Ye.B.; KEL'MAN, F.N.;
OSHEROVICH, R.Ye.; STEPANOV, M.N.; CHEPELEVETSKIY, M.L.; CHERNO-
BAYEVA, M.M.; MIKHAL'CHUK, B.V., redakter; LEONT'YEVA, K.D., re-
dakter; SHPAK, Ye.G., teknicheskiy redakter.

[Methods of analyzing and controlling the production of sulfuric
acid and superphosphates] Metody analiza i kontrolia proizvodstva
sernoi kisloty i superfosfata. Sost. A.G.Amelin i dr. Pod red.
B.V.Mikhal'chuka. Moskva, Gos.nauchno-tekhn. izd-ve khim. lit-ry,
1955. 159 p.   (MLRA 9:5)

1.Moscov. Nauchnyy institut po udobreniyam i insektofungisidam.
       (Sulphuric acid) (Phosphates)

AUTHOR: Kel'man, F. N.   SOV/32-24-9-8/53

TITLE: An Accelerated Method for the Determination of Selenium in
                Goods of Sulfuric Acid Production (Uskorennyy metod opredeleniya
                selena v materialakh sernokislotnogo proizvodstva)

PERIODICAL: Zavodskaya Laboratoriya, 1958, Vol 24, Nr 9, pp 1061-1064 (USSR)

ABSTRACT: There exist several selenium determination methods, among them
                that of M. N. Smirnov (Ref 3). The latter has the disadvantage
                that oxygen is used for the oxidation and that selenium has to
                be separated from tellurium. The present method is based on
                the thermal decomposition of the sample in the electric furnace
                at about 750°, in an air current containing oxides of nitrogen.
                Selenium is gasified in the dioxide form, is collected and
                determined iodometrically. The time involved in the analysis
                is stated to be 1,5 - 2 hours. A diagram of the experimental
                layout is given, together with a description and the procedure
                of analysis. The laboratory technicians G. L. Drobinskaya and
                G. F. Mikheyeva participated in these experiments. Besides
                SeO_2, TeO_2 and As_2O_5 are volatilized in the thermal decompo-

Card 1/2   sition, without, however, interfering with the iodometric

SOV/32-24-9-8/53

An Accelerated Method for the Determination of Selenium in Goods of Sulfuric
Acid Production

selenium determination at a pH = 0,9 - 1,5. In order to prevent
a possible volatilization of elementary selenium (without
oxidation to SeO_2) it is pointed out that the heating to about
750° should be carried out slowly, so as to facilitate a
complete oxidation of selenium. Several tables of analysis
results for various materials are given, and evidence is
provided for the advantage over other methods of the method
described. There are 1 figure, 4 tables, and 6 references,
5 of which are Soviet.

ASSOCIATION: Nauchnyy institut po udobreniyam i insektofungisidam im. Ya. V.
Samoylova (Scientific Institute of Fertilizers and Insecto-
Fungicides imeni Ya. V. Samoylov)

Card 2/2

KEL'MAN, F.N.; KIRYUSHKINA, M.S.

Improved method for determining arsenic in vanadium catalysts.
[Trudy] NIUIF no.164:45 '59.   (MIRA 15:5)
                        (Arsenic—Analysis)

KEL'MAN, Faina Natanovna; BRUTSKUS, Yelena Borisovna; OSHEROVICH, Rakhil' Khaymovna. Prinimali uchastiye: GERBURT, Ye.V.; MIKHAYL'CHUK, B.V.; SHPAK, Ye.G., tekhn. red.

[Methods of analysis in the control of the production of sulfuric acid and phosphorous fertilizers] Metody analiza pri kontrole proizvodstva sernoi kisloty i fosfornykh udobrenii. Moskva, Goskhimizdat, 1963. 351 p.
(MIRA 17:2)

KEL'MAN, Faina Natanovna; BRUTSKUS, Yelena Borisovna; OSHEROVICH,
Rakhil' Khaimovna; MIKHAL'CHUK, B.V., red.; ODERBERG,
L.N., red.

[Analysis methods in the production control of sulfuric
acid and phosphorous fertilizers] Metody analiza pri
kontrole proizvodstva sernoi kisloty i fosfornykh udob-
renii. Moskva, Khimiia, 1965. 390 p.   (MIRA 18:12)

KEL'MAN, G.Ya.

Toxicology of paraoxyneozone and "Antox." Kauch. i rez. 24
no.8:44-45 '65.   (MIRA 18:10)

1. Sanitarno-epidemiologicheskaya stantsija Moskvy.

KEL'MAN, G.Ya.

Comparison evaluation of the toxic properties of rubber antioxidants. Kauch. i rez. 22 no.12:39-40 D '63.

(MIRA 17:9)

1. Sanitarno-epidemiologicheskaya stantsiya, Moskva.

KRIPAK, N.; KEL'MAN, I.; BRAZHNIKOV, V.

Our experience in modernizing production. Mias. ind. SSSR 29
no.6:8-13 '58.   (MIRA 11:12)

1.Semipalatinskiy myasokombinat.
          (Meat industry--Equipment and supplies)

L 45674-66   EWT(m)/T   WE   SOURCE CODE: UR/0318/66/000/004/0012/0015
ACC NR: AP6023622

AUTHOR: Agafonov, A. V.; Osipov, L. N.; Rogov, S. P.; Uzunkoyan, P. N.; Finelonov,
V. P.; Zhandanovskiy, N. B.; Porezhigina, I. Ya.; Kol'man, I. V.; Pisarchik, A. N.;
Afans'yev, V. I.; Khavkin, V. A.; Laz'yan, N. G.

ORG: All-Union Scientific Research Institute of Petroleum Refining (Vsesoyuznyy
nauchno-issledovatel'skiy institut po pererabotke nefti); Novokuybyshev Petroleum Re-
finery (Novokuybyshevskiy neftepererabatyvayushchiy zavod)

TITLE: Experience with catalytic hydrocracking of vacuum distillate on the hydrofin-
ing assembly of the Novokuybyshev Petroleum Refinery

SOURCE: Neftepererabotka i neftekhimiya, no. 4, 1966, 12-15

TOPIC TAGS: catalytic cracking, petroleum product, gas oil fraction, diesel fuel,
gasoline

ABSTRACT: The VNIINP has developed a variant of the process for producing diesel fuel
involving one-step hydrocracking of sulfur-containing vacuum distillates on an alumi-
num-cobalt-molybdenum catalyst. The results of laboratory experiments with this vari-
ant were successfully applied at the experimental industrial hydrofining assembly of
the Novkuybyshev Petroleum Refinery. The operation of the hydrocracking assembly is
described. The feed stock for the plant hydrocracking was vacuum gas oil obtained
from distillation of sulfur feed stock. Distillation of the hydrogenate produced:

UDC: 665.644.2.048.5:665.658.2

Card 1/2

L 45674-66

ACC NR: AP6023622

diesel oil which met all the requirements of GOST 4749-49 for DL grade; a gasoline fraction characterized by a low sulfur content (0.002-0.03), a relatively heavy fractional composition (melting range 120-180°), and a low octane number (42), and is recommended as feed stock for catalytic reforming; the gaseous products methane (49.2 wt. %), ethane (29.4%), propane (17.8%) and butanes (3.6%). The residue of the distillation of fuel fractions is recommended as feed stock for catalytic cracking. It is concluded that the hydrocracking of vacuum gas oil on the hydrofining assembly of NKNPZ confirmed the results of work carried out by the VNIINP on pilot plants for the purpose of designing high-capacity units. Orig. art. has: 1 figure and 2 tables.

SUB CODE: 11/ SUBM DATE: none/ ORIG REF: 001/ OTH REF: 003

Card 2/2   fv

KURKO, V., kand. tekhn. nauk; KEL'MAN, L.

Separation of dimethyl esters of pyrogallol and its homologs
by means of paper chromatography. Mias ind SSSR 34 no. 6:
50-52 '63.   (MIRA 17:5)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut myasnoy
   promyshlennosti.

KURKO, V.I., kand. tekhn. nauk; KEL'MAN, L.F., mladshiy nauchnyy sotrudnik

Chemical nature of smoke components. Trudy VNIIMP no.11:106-118
'62.
(MIRA 18:2)

KURKO, V.I., kand. tekhn. nauk; KEL'MAN, L.F., mladshiy nauchnyy sotrudnik

Phenols content of sausage products as indicator of their
smokiness. Trudy VNIIMP no.12:83-91 '62.   (MIRA 18:2)

KEL'MAN L F.

USSR/Human and Animal Physiology. Metabolism. Nutrition.

Abs Jour: Ref Zhur-Biol., No 12, 1958, 55332.

Author : Belen'kiy, N.G., Krylova, N.N., Chertkov, I.L., Bazarova, K.I.,
            Zuyeva, L.D., Sevost'yanov, B.A., Kel'man, L.F.
Inst   : All-Union Academy of Agricultural Sciences.
Title   : The Influence of Thermal Treatment on the Assimilation of Meat
           Protein

Orig Pub: Dokl. VASKhNIL, 1957, No 4, 23-29.

Abstract: During a period of 6 days, 26 rats of 180-200 gr body weight each,
           received daily 10 gr of beef meat with methionine-S^{35} proteins.
           Seven control rats were given raw ground meat. Nine rats were fed
           ground meat which has been heated in an ultrathermostate at $80°$ $[C]$
           for one hour, and 10 rats received ground meat heated in an autoclave
           at $120°$ $[C]$. Two days after the last (6th) feeding, all rats were
           killed. The proteins were extracted from their plasmas and livers,
           and their radioactivity was determined. The assimilation of proteins
           in their natural state as compared to those denaturized by heat

Card   : 1/2 *A-U Sci Res Inst. 21 of Meat Industry*

USSR/Human and Animal Physiology. Metabolism. Nutrition.

Abs Jour: Ref Zhur-Biol., No 12, 1958, 55322.

did not show any differences. Thereafter, this investigation was
continued on dogs (numbering 8), whereby the nitrogen balance was
studied as well. Here, it was established that natural proteins are
assimilated somewhat better than denaturized proteins. Also, it was
established that the degree of denaturalization does not exert any
specific influence upon protein assimilation.

Card   : 2/2

KURKO, V.I., kand.tekhn.nauk; KEL'MAN, L.E., mladshiy nauchnyy sotrudnik

Aromatic properties of phenols, products of thermal decomposition of wood. Trudy VNIIMP no.14:36-48 '62.   (MIRA 16:8)
(Meat, Smoked) (Phenols)

KURKO, V.I., kand. tekhn. nauk; KEL'MAN, L.F., mladshiy nauchnyy sotrudnik;
ROGOV, I.A., kand. tekhn. nauk

Some comparative studies of conventional and electrostatic smoking.
Trudy VNIIMP no.12:92-103 '62.   (MIRA 18:2)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut myasnoy
promyshlennosti (for Kurko, Kel'man). 2. Moskovskiy
tekhnologicheskiy institut myasnoy i molochnoy promysh-
lennosti (for Rogov).

KURKO, V.I., kand. tekhn. nauk; KEL'MAN, L.F., inzh.-khimik;
MEL'TSER, F.R., inzh.-khimik; KUZNETSOVA, A.A., laborant

Comparative phenol characteristics of smoking preparations
and uncooked smoked sausage. Trudy VNIIMP no.16:211-220 '64.
(MIRA 18:11)

ALEKSANDROV, S.N., inzh; KEL'MAN, L.Ya., inzh; PLISAN, I.G., inzh;
KAMENSKIY, S.K., inzh; RUVIMSKIY, I.M., inzh

Improving the feed-water tubing circuit. Elek.sta 29 no.9:58-64
S '58.   (MIRA 11:11)
                                                       .!

1. Pridneprovskaya gosudarstvennaya rayonnaya elektricheskaya
stantsiya.
              (BOILERS)

. KEL'MAN, L.Ya., inzh.; MAS'KO, N.Ye.

     Operation of ash dumps in electric power plants. Elek. stat.
     35 no.1:11-13 Ja '64.   (MIRA 17:6)

KEL'MAN, L.Ya., inzh.

Arrangement for feeding TKZ boilers. Elek.sta. 31 no.7:85 Jl
'60.   (MIRA 13:8)
                    (Boilers)

KEL'MAN, L.Ya., inzh.; MAS'KO, N.Ye., inzh.

Use of shot in the cleaning of a feed water economizer in a system oper-
ating on Estonian shale. Elek. sta. 34 no.11:16-20 N '63.

(MIRA 17:2)

YAKOBSON, A.N., inzh.; TITOV, P.P., inzh.; VERNER, Ye.V., inzh.; KEL'MAN,
M.M., inzh.

Automatic unit for molding ornamental ceramic tiles. Stroi.i dor.
mashinostr. 5 no.3:25-28 Mr '60.   (MIRA 13:6)
                    (Tiles)

KOZYREV, G.S., dots.; KEL'MAN, N.I.

Variations in the development of leg muscles in different duck
breeds. Uch.zap. KHGU 52:245-263 '54.   (MIRA 11:11)

1. Kafedra zoologii pozvonochnykh Khar'kovskogo gosudarstvennogo
universiteta (zav. - prof. I.B. Volchanetskiy).
        (Duck breeds)   (Extremities (Anatomy))

L 6956-66   EWT(1)/FCC/EWA(h)   GW

ACC NR: AP5026229   SOURCE CODE: UR/0048/65/029/010/1865/1869

29

B

AUTHOR: Glikman, L.G.; Kel'man, V.M.; Yakushev, Ye.M.

ORGAN: Institute of Nuclear Physics, Academy of Sciences, Ka$_z$SSR (Institut yadernoy fiziki Akademii nauk KazSSR)

TITLE: On the electromagnetic mechanism of cosmic ray acceleration /Report, All-Union Conference on Cosmic Ray Physics held at Apatity, 24-31 August 1964/

SOURCE: AN SSSR. Izvestiya. Seriya fizicheskaya. v. 29, no. 10, 1965, 1865-1869

TOPIC TAGS: Primary cosmic ray, particle acceleration, alternating magnetic field, relativistic particle

ABSTRACT: The relativistic equations of motion of a charged particle moving in the plane of antisymmetry of a varying axially symmetric magnetic field are solved for the case when the azimuthal component of the vector potential in the plane of antisymmetry has the form $f(r/(t-a))/r$, where f is an arbitrary function, r is the distance from the axis, t is the time, and a is a constant. Numerical solutions were computed for a field which alternately increases and decreases between finite limits and remains constant for a time at each limit. For the computations it was assumed that the field strength oscillates between 1.0×10^{-5} and 1.2×10^{-5} Oe with a period of 3.5×10^5 sec. Some of these solutions are presented graphically and are discussed. The computations show that the ratio of particle energy to field strength is not constant and

Card 1/2

L 6956-66

ACC NR: AP5026229

that particles can be accelerated to high energies by variable magnetic fields which do not increase indefinitely in strength. Orig. art. has: 19 formulas and 4 figures.

SUB CODE: AA   SUBM DATE: 00/--Oct65   ORIG. REF: 006   OTH REF: 000

Card 2/2

L 10664-66   EWT(d)/EWT(1)   LJP(c)   CG

ACC NR: AP5028313   SOURCE CODE: UR/0057/65/035/011/1997/2003

AUTHOR: Glikman, L. G.; Kel'man, V. M.; Yakushev, Ye. M.

ORG: none

TITLE: Solution of the nonrelativistic equations of motion for a charged particle in a certain class of varying electromagnetic fields

SOURCE: Zhurnal tekhnicheskoy fiziki, v.35, no. 11, 1965, 1997-2003

TOPIC TAGS: charged particle, motion equation, electromagnetic field, mathematic method

ABSTRACT: The solution of the nonrelativistic equations of motion for a certain class of motions of a charged particle in a certain class of varying electromagnetic fields is reduced to quadratures and eliminations. The electromagnetic fields considered are those that are axially symmetric, have a median plane which is a plane of symmetry for the electric field and a plane of antisymmetry for the magnetic field, and for which the radial and axial components of the vector potential vanish in the median plane (in the gauge in which the scalar potential vanishes) and the azimuthal component of the vector potential in the median plane has the form $F(r^2/(at^2 + bt + d))/r$, where r is the distance from the axis, t is the time, a, b, and d are constants, and F represents an arbitrary function. The motions considered are those in which the particle remains in the median plane. The particular form of the vector

Card 1/2   UDC: 537.533.3

L 10664-66

ACC NR: AP5028313

potential was investigated because it leads simply to an integral of motion. The treatment is different depending on whether the polynomial $at^2 + bt + d$ does or does not vanish during the motion, and special discussion is required for the case in which the particle passes through the point $r = 0$. No applications are suggested for the results obtained. Orig. art. has: 38 formulas.

SUB CODE: 20   SUBM DATE: 12Apr65/   ORIG.REF: 003   OTH REF: 001

Card 2/2

Magnetic electron mirror. V. M. Kel'man, M. I. Korsunskii and P. P. Lange. *J. EXPL. Theoret. Phys.* (U. S. S. R.) 9, 681 4(1939). There is described a magnetic electron mirror, optically equiv. to a system of cylindrical lenses and a mirror, for directing a nonhomogeneous (polychromatic) electron beam.   P. H. Rathmann.

Lab. Impact Stresses, AS USSR Kharkov

ASM SLA   METALLURGICAL LITERATURE CLASSIFICATION

ca

3

Multiply repeated acceleration of electrons. V. M. Kel'man, M. I. Korsunskii and F. F. Lange. *J. Expil. Theoret. Phys.* (U. S. S. R.) 9, 944-6(1939).—K., K. and L. give a theoretical-math. discussion of the necessary

conditions to be fulfilled by a cyclotron system, and describe a relatively simple app. for obtaining electrons with energies of up to 48 m. e. v.   F. H. Rathmann

3

β-Spectrograph with inhomogeneous magnetic field. M. Korsunskii, V. Kel'man, and B. Petrov. *J. Expll. Theoret. Phys.* (U.S.S.R.) **14**, 394-401(1944). The β-spectrograph capable of exact focusing is discussed. With this β-spectrograph a complete focusing of an electron beam in the plane perpendicular to the magnetic field can be obtained within the limits of 40°.
                                                                Galina M. Lebedeff

Physico Tech Inst, AS USSR

β-Spectrograph with an inhomogeneous magnetic field. M. Korsunskii, V. Kel'man and B. Petrov. (Phys. Tech. Inst., Acad. Sci. Ukrainian SSR). J. Phys. (U.S.S.R.) 9, 7–13(1945).—See C.A. 39, 2926⁴.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

KELMAN, V. M.

180T109

USSR/Physics - Spectrography, Beta-Rays   Apr 51

"Problem of Beta-Spectrograph Construction Based on Analogy With an Optical Spectrograph," V. M. Kelman, D. L. Kaminskiy, Leningrad Physicotech Inst, Acad Sci USSR

"Zhur Eksper i Teoret Fiz" Vol XXI, No 4, pp 555-561

Authors criticize spectrograph by Klemperer (cf. "Phil Mag" 20, 545, 1935) as not similar to opt instr and consider its dispersion as zero. Authors design new spectrograph analogous to opt and det its dispersion and line width.

LC   180T109

KELMAN, V. M.

USSR/Physics - Electron Optics   Dec 51

"Motion of Charged Particles in a Magnetic Field of a Linear Current and in the Electric Field of a Cylindrical Condenser," M. Kelman, I. V. Rodnikova, Leningrad Phys Tech Inst, Acad Sci USSR

"Zhur Eksper i Teoret Fiz" Vol XXI, No 12, pp 1364-1369

Derives expressions in form of quadratures, detg motion of charged particles in a constant electromagnetic field of a cylindrical condenser with linear conductor along its axis. At certain ratio of field tension and initial velocity of particles such a system

198T103

USSR/Physics - Electron Optics
         (Contd)   Dec 51

has the property to focus bundles of charged particles. Shows that linear charged conductor acts on motion of charged particles with initial velocity perpendicular to conductor as deviating electrooptical element. Submitted 5 Jan 51.

198T103

KELMAN, V. M.

USSR/Nuclear Physics - Electron Lens   Apr 52

"Discussion: Modeling the Motion of Charged Particles in Axial-Symmetrical Magnetic Fields," D.L. Kaminskiy, V.M. Kelman

"Zhur Tekh Fiz" Vol XXII, No 4, pp 703-706

Authors criticize article by I.I. Tsukerman (Zhur Tekh Fiz" Vol XXI, 599, 1951) who states that an axial-symmetrical magnetic field scatters electrons similarly to a concave optical lens. Although it may occur in very particular cases, authors consider it impossible to construct a magnetic scattering lens. Received 11 Dec 51.

216T93

KELMAN, V. M.

USSR/Nuclear Physics - Modeling Motion   May 52
of Particles

"Modeling the Motion of Charged Particles in a
Two-Dimensional Electric Field Taking Into Ac-
count the Volumetric Charge," B. V. Bobykin,
V. M. Kelman, D. L. Kaminskiy

"Zhur Tekh Fiz" Vol XXII, No 5, pp 736-743

In order to find trajectories of charged particles
in a plane free of space charge, the trajectories
are considered to be those of balls rolling on a
rubber membrane.   (cf. P. Klynen, Philips Tech

Rev, 2, 231, 1937; V. K. Zvorykin et al. "Pro-
ceedings of IRE" 27,558, 1939). Author modifies
this method for the case of space charge. Re-
ceived 14 Feb 52.

222T65

222T65

USSR/Physics - Spectrometers

Card 1/1   Pub. 43 - 10/11

Authors   : Kel'man, V. M.; Kaminskiy, D. L.; and Romanov, V. A.

Title   : Beta-spectrometer with greater resolving power

Periodical : Izv. AN SSSR. Ser. fiz. 18/1, 148-154, Jan-Feb 1954

Abstract   : The construction of a beta-spectrometer of greater resolving power (with symmetrical path of rays) is announced. The spectrometer consists of an electromagnet with screen, copper vacuum-chamber with two copper tubes attached to it, two magnetic lenses, source retainer and recording device. The components of the electrical magnet are described. The current in the coils is directed in such a way that the magnetic current produced by it in the iron yokes are oriented opposite each other. The magnetic current passes through the gap between the upper and lower iron plates of the yoke which also assume the role of poles. Some results obtained with this beta-spectrometer are listed. Two USSR references (1939-1951). Graphs; drawings.

Institution : Academy of Sciences USSR, Physico-Technical Institute

Submitted   : December 15, 1953

USSR/Nuclear Physics - Electron magnetic mirrors

Card 1/1   Pub. 43 - 11/11

Authors   : Kel'man, V. M., and Lyubimov, K. V.

Title   : Similar trajectories of charged particles in magnetic fields

Periodical : Izv. AN SSSR. Ser. fiz. 18/1, 155-160, Jan-Feb 1954

Abstract   : Two simple types of electron magnetic mirrors were investigated to deter-
mine their suitability in studying the trajectory variations of charged
particles in magnetic fields. The magnetic fields of these mirrors were
determined by the vector potentials representing homogeneous functions
of coordinates with two and three degrees of homogeneity. The form of
the trajectory of a charged particle moving in a magnetic field changes
during change in the velocity of the particle and depends also upon the
intensity of the magnetic field. Three references: 2-USSR and 1-USA (1933-
1944). Graphs; drawings.

Institution : Academy of Sciences USSR, Physico-Technical Institute

Submitted   : December 15, 1953

USSR/Nuclear Physics - Beta-spectrometers

Card 1/1   Pub. 43 - 4/97

Authors   : Kel'man, V. M.; Kaminskiy, D. L.; and Romanov, V. A.

Title   : A larger prism beta-spectrometer with two magnetic lenses

Periodical   : Izv. AN SSSR, Ser. fiz. 18/2, 209-214, Mar-Apr 1954

Abstract   : The construction and testing of a larger scale prism-type beta-spectrometer
with two magnetic lenses for greater resolving and illuminating power is
announced. In principle this spectrometer is not different from the spec-
trometer model described in a previous report; however, its dimensions
are larger and it was constructed with greater perfection. The structural
and technical characteristics of the prism-type beta-spectrometer are
described in detail. Three references: 2 USSR and 1 USA (1939-1954).
Graphs; drawings.

Institution   : . . . .

Submitted   : . . . .

$KELMAN, V. M.$

USSR/Physics - Charged particle motion

FD-911

Card 1/1   Pub 153-20/26

Author   : Kelman, V. M. and Yavor, S. Ya.

Title   : Motion of charged particles in a homogeneous magnetic field on which
                 the magnetic field of a linear current and the electric field of a
                 cylindrical condenser are superposed

Periodical   : Zhur. tekh. fiz. 24, 1329-1332, Jul 1954

Abstract   : Expressions defining the motion of charged particles in a homo-
                 geneous field on which the magnetic field of a linear current
                 and the electric field of a cylindrical condenser are superposed
                 are obtained in the form of quadratures. Numerical integration
                 is carried out in certain particular cases. One reference, by
                 the same author.

Institution   : --

Submitted   : July 29, 1953

USSR/ Physics - Electron optics   FD-1037

Card 1/1   :   Pub. 153 - 8/23

Authors   :   Kel'man, V. M. Kaminskiy, D. L., and Yavor, S. Ya.

Title   :   Experimental investigation of cylindrical magnetic electronic lenses

Periodical   :   Zhur. tekh. fiz., 24, 1410-1427, Aug - 1954

Abstract   :   Discuss results of experimental investigation into the electron-
                  optical properties of the magnetic cylindrical lense whose field
                  differs but slightly from the field of two infinite rectlinear
                  oppositely directed currents and also into the systems consisting of
                  two such lenses. Give graphs showing the relation between object
                  position and image for various current strengths. Thanks Diplomat
                  V. P. Vlasenko. Seven references, 2 USSR (N. I. Shtepa, ZhTF, 216,
                  1952; A. M. Strashkevich, ZhTF, 91, 1940).

Institution :   - -

Submitted   :   16 March 1954

USSR/Physics - Beta-spectrometer

Card 1/1

FD 410

Author   : Kel'man, V. M., Dusayev, G. S., Malkiel', G. S., and Nevodnichiy, N. N.

Title   : Beta-spectrometer with magnetic prism and one magnetic lens

Periodical : Zhur. eksp. i teor. fiz. 26, 107-108, Jan 1954

Abstract   : Describes the construction and testing of a beta-spectrometer similar to an optical prismatic spectrometer with one lens. Follow the principles of construction discussed by V. M. Kel'man and D. L. Kaminskiy in their work appearing in this journal (Vol 21, 555, 1951)

Institution : Leningrad Physicotechnical Institute, Acad Sci USSR

Submitted : November 5, 1951

KEL'MAN, V.M.

YAVOR,S.Ya.; KEL'MAN,V.M., professor

[Magnetic cylindrical lenses] Magnitnye tsilindricheskie linsy.
Leningrad, 1955. 9 p.   (MLRA 9;3)
                (Electrooptics) (Lenses)

KEL'MAN, V.M.

Category : USSR/Electronics - Electronic Optics   H-3

Abs Jour : Ref Zhur - Fizika, No 2, 1957, No 4279

Author   : Baranovskiy, S.N., Kaminskiy, D.L., Kel'man, V.M.
Title   : Investigation of the Electron-Optical Properties of Straight Magnetic
           Slits.

Orig Pub : Zh. tekhn. fiziki, 1955, 25, No 4, 610-624

Abstract : An investigation was made of the electron-optical properties of many
           magnetic slit lenses (cylindrical lenses), having various structural
           dimensions. The constructions of these lenses and their properties
           are described. A study was made of the qualitative picture of the
           distribution of the magnetic field in the lens. A qualitative study
           of the distribution of the field was carried out with the aid of a
           ballistic galvanometer in three planes, oriented at different angles
           (ϑ =90°, 180°, and 135°) relative to the surface of the pole pieces
           and intersecting under the central line of the non-magnetic gap of the
           lens. It is shown that the distribution obtained in the planes ϑ=90°
           and 135° are in very close agreement with the field of the isolated
           single conductor, if the current in this conductor is properly chosen.
Card   : 1/2

Category : USSR/Electronics - Electronic Optics

H-3

Abs Jour : Ref Zhur - Fizika, No 2, 1957, No 4279

It is thus possible to find the linear current producing a "equivalent" field. Equations for the distribution of the trajectories of the electrons in the field of the isolated linear current were taken from the work by Kel'man and Roknikov (Zh. eksperim. i teoret. fiziki, 1951, 21, 1364). These equations are used to determine the trajectories which start at the peaks of a conical beam and which then fall into the field of the isolated current. It is shown that the field of the isolated current focuses such a beam, forming focal lines.

The authors describe an experimental camera, in which it is possible to study the electron-optical properties of beams of particles, emerging from a gun and entering into the field of the slit lenses of the above construction. The quality of focusing of the beam into a focal line is checked from the image on a fluorescent screen, which is placed on a mount that can be moved in two mutually perpendicular directions, so that the screen can be placed in any previously specified position.

Photographs of the focal line obtained in this manner are given. It is shown that the results of calculation using the "equivalent" linear current and the results of the experiments are close to each other.

Card   : 2/2

KEL'MAN, V.M.; LEBEDEV, A.A., akademik, redaktor; SMIRNOVA, A.V.
tekhnicheskiy redaktor.

[Electron optics] Elektronnaia optika. Moskva, Izd-vo Akademii
nauk SSSR, 1955. 163 p.   (MLRA 8:10)
        (Electron optics)

FD-3178

USSR/Physics - Electron Optics

Card 1/1   Pub. 153-8/21

Authors   : Kel'man, V. M. and Yavor, S. Ya.

Title   : Investigation of a cylindrical magnetic lens with an iron shell

Periodical: Zhur. tekh. fiz., 25, No 8 (August), 1955, 1405-1411

Abstract   : The authors investigate the electron-optical properties of a jacketed cylin-
              drical magnetic lens encased in iron plates 80 cm long. After a physical
              description of the apparatus they outline its operational characteristics,
              expressing the data in graphical form. They give the curve of field distri-
              bution, variation in field intensity, dependence of angle of rotation at
              various lens-to-object distances, as well as other curves expressing various
              interrelationships among these characteristics.

Submitted : March 9, 1955

KEL'MAN, V.M.; KRASNOV, I.F.

Rubber diaphragm technique for determining electron current
magnitudes in vacuo. Zhur.tekhn.fiz. 25 no.10:1714-1725 S
'55.   (MIRA 9:1)
    (Electrons) (Electric discharges through gases)

KRASNOV, I.P.; KEL'MAN, V.M.

Rubber diaphragm technique for solving problems on plane diodes with limited emitting surface widths. Zhur.tekh.fiz. 25 no.10: 1726-1734 S '55.   (Diodes)   (MLRA 9:1)

Kel'man, V. M.

BARANOVSKIY, S.N.; KAMINSKIY, D.L.; KEL'MAN, V.M.

A double magnetic slit. Zhur.tekh.fiz. 25 no.11:1954-1956 O '55.
     (Electron optics)   (MLRA 9:1)

KEL'MAN,V.M.; ROMANOV,V.A.; METSKHVARISHVILI,R.Ya.

Measurement of the internal conversion coefficients for L- and M-subshells of ThC. Dokl. AN SSSR 103 no.4:577-579 Ag'55.

(MLRA 8:11)

1. Leningradskiy fiziko-tekhnicheskiy institut Akademii nauk SSSR. Predstavleno akademikom A.F.Ioffe
(Thorium--Isotopes) (Spectrometry) (Nuclear shell theory)

KEL'MAN, V. M.

Category : USSR/Nuclear Physics - Structure and Properties of Nuclei   C-4

Abs Jour : Ref Zhur - Fizika, No 2, 1957 No 3200

Author   : Kel'man, V.M., Metskhvarishvili, R.Ya., Romanov, V.A., Rusinov, L.I.,
            Konoplev, K.A.
Inst   : Leningrad Physicotechnical Institute, Academy of Sciences USSR
Title   : Determination of the Ratios of the Internal-Conversion Coefficients for
   the Isomeric Transition of In^{114}.

Orig Pub : Dokl. AN SSSR, 1956, 107, No 3, 394-397

Abstract : A prism beta spectrometer with a transmission factor .02% and a
            resolution 0.04% was used to measure the ratios of the conversion
            coefficients at various L subshells and also at the K, M, and N
            shells for the 192-kev isomeric transition in In^{114}. The ratios are
            $L_I : L_{II} : L_{III} = (0.24 \pm 0.01) : (1.27 \pm 0.02) : 1$; $L/M = 4.4 \pm 0.1$;
            $M/N = 4.6 \pm 0.2$; $K/L = 1.32 \pm 0.02$. All data are in good agreement
            with the type of multipole transition assumed (E4).

Card   : 1/1
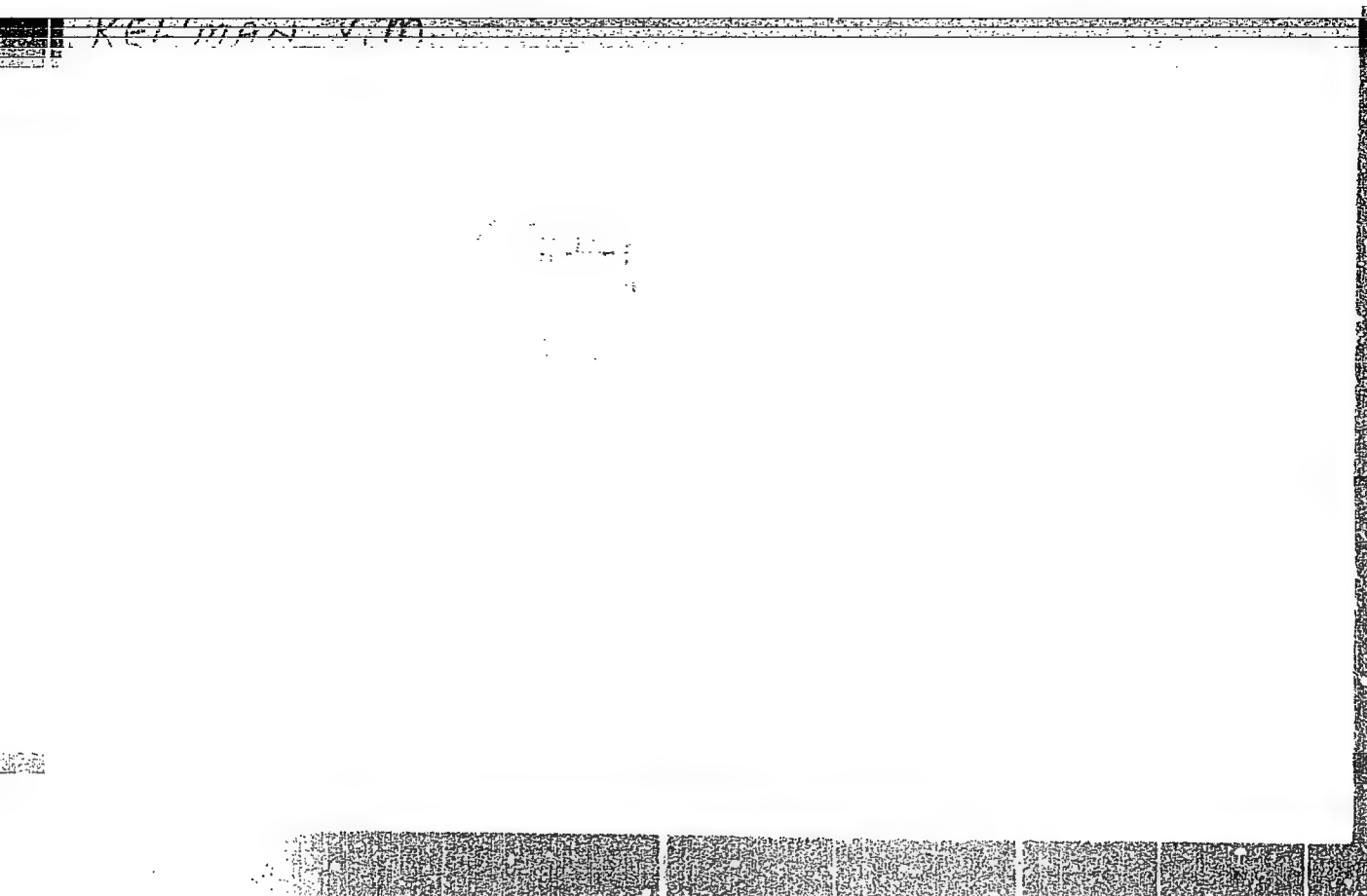
Kɛ ɪ ƒ 'ᴀȺ N̅ , ƒ. /Ħ.

AUTHORS   Kel'man, V.M., Utkin, K.G.,   57-9-23/40
             Loginova, L.N.

TITLE   A Simplified Construction of a System Containing
             a Rubber Membrane for the Determination of the
             Trajectories of Charged Particles in the Presence of
             a Space Charge.
             (Uproshchennaya konstruktsiya ustanovki s rezinovoy
             membranoy dlya opredeleniya trayektoriy zaryazhennykh
             chastits v prisutstvii ob"yemnogo zaryada.)

PERIODICAL   Zhurnal Tekhn. Fiz., 1957, Vol. 27, Nr 9, pp. 2092-2096
             (USSR)

ABSTRACT   In the papers by V.M. Kel'man and I.V. Krasnov,
             Zhurnal Tekhn. Fiz., 1955, Vol. 25, p. 1714, and p.1726
             it was shown that the accuracy with which the trajectories
             of charged particles was determined by means of rubber
             membranes could be considerably increased by giving up
             modelling particle motion by means of a ball rolling
             on a rubber surface, and by using only graphic methods
             for the construction of trajectories. Giving up using
             balls makes it possible to simplify construction con-
             siderably, because in such a case the pressure modelling
CARD 1/2   the space charge on the membrane could be brought to

ABSTRACT: The authors recorded the lines of the inner conversion on the
            K shells as well as on the L- and M-subshells of the Sm^{152} and
            Sm^{154} by means of a prism-β-spectrometer of great resolving ca-
            pacity and determined the ratios of the conversion coefficients
            at the energies 122 and 123,2 keV of the transitions. The re-
            solving capacity of the prism spectrometer used here was in-
            creased by the following measures: 1) Shielding of the tubes of
            the spectrometer against extraneous magnetic fields by iron
            rings. 2) The straight gap of the registering device was re-
            placed by a slightly curved gap. 3) A certain modification of
            the feeding of the magnet and of the lens of the spectrometer.
            The L-subshells of the Sm^{152} and Gd^{154}: A diagram demonstrates
            the sphere of the β-spectrum of a β-spectrum of Eu^{152} and Eu^{154}

Card 1/3

with those lines that were produced by the electrons of the
inner conversion of the γ-rays with the energies 122 and
123,2 keV on the subshells of the Sm^{152} and Gd^{154}. The condi-
tions under which the lines were obtained as well as the be-
havior of the lines are discussed. The theoretical ratios of the
conversion coefficients agree with the here measured ratios.

The M-subshells of samarium: A further diagram demonstrates
the sphere of the :-spectrum with the lines which are pro-
duced by the inner conversion on the M-subshell of samarium.
The authors found the following ratio of the coefficients of
the conversion on the M-subshells: $M_I:M_{II}:M_{III} = 1:(3,4\pm0,1):$
$:(3,3\pm0,2)$. This corresponds to the conclusions from the
approximated calculations of the relative conversion coeffi-
cients. Furthermore $L/M = 4,5\pm0,1$ $(L=L_I+L_{II}+L_{III};$
$M = M_I+M_{II}+M_{III})$ was found.

Card 2/3

AUTHORS: Kel'man, V.M., Metskhvarishvili, R.Ia., Romanov, V.A.   56-3-6/59
             Tuchkevich, V.V.,

TITLE: The Investigation of Conversion Lines in the ß-Spectrum of Ir192.
             (Issledovaniye konversionnykh liniy v ß-spektre Ir192)

PERIODICAL: Zhurnal Eksperim. i Teoret. Fiziki, 1957, Vol. 33, Nr 3, pp.588-594
             (USSR)

ABSTRACT: With the help of a prism-ß-spectrometer (resolving of 0,04 %) the
             conversion coefficients and the multipole order of the following
             γ- lines were determined:

Eγ in KeV	K/L	K/M	multipole order
136,3			(80 ± 1)% E2 + (20 ∓ 1)% M1
201,3	1,85$\pm$0,04		(86 ± 2)% E2 + (14 ∓ 2)% M1
205,8	1,83$\pm$0,04		E2
295,8	2,35$\pm$0,04	8,9$\pm$0.2	E2
308,5	2,38$\pm$0,02	9,5$\pm$0,2	(97 ± 2)% E2 + (3 ∓ 2)% M1
316,5	2,22$\pm$0,02	9,3$\pm$0,2	E2
468,0	3,0 $\pm$0,1	10,2$\pm$0,2	E2
604,5	4,7 $\pm$0,1		(88 ± 2)% E2 + (12 ∓ 2)% M1

Card 1/2

The Investigation of Conversion Lines in the ß- Spectrum of Ir192   56-3-6/59

             There are 2 tables, 7 figures, and 9 Slavic references.

ASSOCIATION: Leningrad Physical-Technical Institute AN USSR
             (Leningradskiy fiziko-tekhnicheskiy institut Akademii nauk SSSR)

SUBMITTED: March 18, 1957

AVAILABLE: Library of Congress

Card 2/2

KEL, MHN, V M.

AUTHOR: DOLMATOVA, K.A., KEL'MAN, V.M.   20-6-16/59

TITLE: A Longitudinal β-Spectrometer with Compensated Spherical Aberration.
(Prodol'nyy β-spektrometr s kompensirovannoy sfericheskoy aberratsiyey. Russian).

PERIODICAL: Doklady Akademii Nauk SSSR, 1957, Vol 113, Nr 6, pp 1244 - 1247 (U.S.S.R.)

ABSTRACT: The spherical aberration described in the paper under review is compensated by a transverse magnetic field of the field strength $H = H_1/r$. The additional F is generated by a winding which concentrates in an annular focus the ions which fly out of the source in a wide solid angle. No difficulty is encountered in computing the electrons paths in the range of the homogeneous field. Also in the range where the homogeneous magnetic field is superposed with a field of the field strength $H = H/r$, the differential equations of the motion of the electrons are reduced to quadratures. The present paper contains the revalent formulae for the differential equations and for their solutions. The compensating field was applied in the neighborhood of the apex of the orbit. With the aid of these formulae a form was found for the boundary of the inhomogeneous field which guarantees an annular focus of aberration (if a point source is used). This focus coincides with the linear annular focus which is formed

Card 1/3

20-6-16/59

A Longitudinal β-Spectrometer with Compensated Spherical Aberration.

by an infinitely small bundle of the ions flying away under an angle of 30°.

The longitudinal field was generated by a coil of a length of 110 cm and of an internal diameter of 33 cm; this coil was wound on a copper tube. At the same time, this copper tube also served as chamber of the spectrometer . Additional improvements in the homogeneity of the field were achieved by the use of correcting coils. Almost everywhere the form of the coils was in agreement with the computed form of the boundary of the field. The radioactive source was glued to a fastener which was introduced into the vacuum chamber through a Wilson compession /?/ and through a vacuum tap. A counter (G-M5) with a window of a diameter of 90 mm served as detector. Employment of a compensating field reduces the width of the annular projection by about 2.5 times as compared to the width of the projection in a homogeneous field. Further investigations were conducted with the aid of a radioactive source (active TiP-precipitation) with the dimensions of 1 X 1 mm. A brief discussion of the results is given.(4 reproductions).

Card 2/3

AUTHOR: Kel'man, V. M., Doctor of Physical- and   SOV/3o-58-7-13/49
            Mathematical Sciences

TITLE: New Magnetic Beta-Spectrometer (Novyy magnitnyy beta-spektrometr)

ABSTRACT: The magnetic prism deflecting the electron beam, must be con-
            sidered as the most important part of this spectrometer which
            was developed in the Physical-Technical Institute. The parallel
            electron beam striking the deflection magnet, must remain parallel
            also after its deflection. This condition, however, can only be
            satisfied if a deflecting magnet as represented in figure 1, is
            used. The construction of the β-spectrometer is given in figure
            2 and is then described in detail..The conversion line of γ-
            quanta of different energies is given in figure 3, being a section
            of the spectrum of conversion electrons which are produced in
            the decay of Ir^{192}. The conversion lines of the I and Ia active
            sediment RdTh are given in figure 4. A further perfection of the
            new β-spectrometer is to be achieved by an improvement of the
Card 1/2   deflection magnet, the electronic lenses and by   shielding

New Magnetic Beta-Spectrometer

SOV/3o-58-7-13/49

the electrons against the action of random magnetic fields.
It is further suggested to use magnetic material of higher
quality and to pay more attention to the stabilization of the
magnetic field. This kind of work is carried out at present
in the Physico-Technical Institute. There are 4 figures.

Card 2/2

AUTHORS: Kel'man, V. M., Peregud, B. P.,   57-28-5-26/36
            Dolmatova, K. A.

TITLE: Accelerators With a Radially Growing Leading Field and Addi-
            tional Electron Optical Elements for Securing the Vertical
            Focussing of the Beam (Uskoriteli s radial'no narastayushchim
            vedushchim polem i dopolnitel'nymi elektronnoopticheskimi
            elementami, obespechivayushchimi vertikal'nuyu fokusirovku
            puchka)

ABSTRACT: The application of a radially decreasing field in modern weakly
            focussing accelerators is determined by the necessity of a ver-
            tical focussing of the beam of the accelerated particles. The
            new possibilities, which have been proposed from various sides
            (references 1-8) immediately attracted the interest of resear-
            chers. Recently, numerous experimental and theoretical inve-
            stigations were conducted dealing with the application of these
            proposals in different types of accelerators (references 9-22).
            All these methods have the following in common: 1) The vertical
Card 1/4   field component is not constant in the middle plane and periodi-

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cally changes its value, or, with respect to the azimuth, even
its direction. 2) The functions of the leading and of the fo-
cussing field are performed by one and the same field, which
only formally can be regarded as a superposition of two fields.
This field, however, is created only by one magnetic system;
3) The magnet poles must possess an accurately worked, compli-
cated profile (method by Thomas and the spiral-sector variant)
or the field must be created by a great number of accurately
placed sector magnets. A series of shortcomings attached to
the new accelerator constructions are a result of these cir-
cumstances. The authors propose another method. The focalization
is effected by supplementary electron optical elements: with
cylindrical magnet lenses or magnet gaps. The method guarantees
the stability of the radial as well as of the vertical betatron
oscillations and can be employed for the construction of cir-
cular accelerators of different types. In this paper the possible
constructional variants of the focussing system are drawn into
consideration and the electron model is described. The peculia-
Card 2/4   rities of the proposed method differentiating it from earlier

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ones, are as follows: 1) A separation of the functions of fo-
calization and of leading the beam between two elements - the
magnet and the focussing system. This guarantees the free choice
of the shape of the leading field and facilitates its creation.
As a result of the separation a facilitated leading of the beam
and a slackening of the restrictions imposed upon the produc-
tion and the mounting of the constructional nodes of the acce-
lerator can appear. This is the case in particular, if small
adjustments and a flexibility of the elements of the focussing
system during the mounting of the accelerator are provided for.
2) The comparatively low weight of the electromagnet creating
the leading field in comparison to the weight necessary in ear-
lier methods. This is connected with the fact that the magnetic
circuit of the focussing system is not closed by the yoke of
this magnet. 3) An increase of the copper weight and of the
necessary power. 4) A more simple construction of the electro-
magnet consisting of the possibility of employing a closed ring
magnet with a low number of magnetizing coils and no sector
Card 3/4   magnet. An electronic simulator was built for experimental exa-

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mination. A schematic   cross section of this model is shown
in figure 2. At present the model is prepared for experiment.
The authors thank G.A. Grinberg, Yu.V. Vandakurov, D.G. Al-
khazov and D.M. Kaminker. There are 3 figures and 29 references,
1o of which are Soviet.

ASSOCIATION: Fiziko-tekhnicheskiy institut AN SSSR, Leningrad (Leningrad,
                Physical-Technical Institute, AS USSR)

SUBMITTED: July 11, 1957

                1. Particle accelerators--Design   2. Particle beams--Focusing

Card 4/4

KEL'MAN, V.M., doktor fiziko-mat. nauk

New magnetic beta-spectrometer. Vest. AN SSSR 28 no. 7:75-78
Jl '58.   (MIRA 11:7)

(Spectrometer)

21(9)

AUTHORS: Kel'man, V. M.,   Kolyunov, V. A.,   Karpov, M. V.

TITLE: The Application of Magnetic Slits for the **Creation**   of
               Circular Trajectories of Charged Particles (Primeneniye
               magnitnykh shcheley dlya formirovaniya krugovykh trayektoriy
               zaryazhennykh chastits)

ABSTRACT: The authors of the present paper investigated an electron-
               optical system consisting of magnetic slits with a magnetic
               field increasing rapidly in the direction of the periphery
               but not leading to defocusing in a vertical direction, which
               bends the trajectories of charged particles, rendering them
               nearly circular. The vector potential in point P of this
               system has the form

$$A_z = -\frac{I}{c} \ln \frac{(r/a)^{2n} - 2(r/a)^n \cos n\varphi + 1}{(r/a)^{2n} + 2(r/a)^n \cos n\varphi + 1}; \quad A_r = A_\varphi = 0, \quad A = A_z.$$

               (I = current in every conductor, r = distance between the axis
               of the system O and P, a = distance from O to conductor,

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The Application of Magnetic Slits for the Creation   of Circular Trajectories
of Charged Particles

$2n$ = the number of conductors, and φ = the polar angle). For the momentum it holds that $P = \partial L/\partial \dot{z} = m\dot{z} + eA/c = m\dot{z}_0 + eA_c/c$ = const; the Lagrangian $L = \frac{m}{2}(\dot{x}^2 + \dot{y}^2 + \dot{z}^2) + eA\dot{z}/c$. Scheme and schematical drawing of such a system which can be used in an accelerator with a constant guiding field are given (Figs 1, 2). The experiments carried out with this device are described. The device consisted of 16 poles arranged in a circle and having 200 windings each; the distance between the gun and the edge of the poles ~ 1.5 cm. at radial oscillation of the order of 2 cm and vertical oscillations ~5 cm. The electron energy amounted to 3 keV (5 - 10 A). The amperage depended in a high degree on the distance between gun and pole. The phenomenon had the shape of a slightly curved band of 1 - 3 mm breadth and 10 - 20 mm height. An arrangement consisting of 32 poles gave similar results. There are 2 figures and 4 Soviet references.

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The Application of Magnetic Slits for the **Creation** of Circular Trajectories
of Charged Particles

ASSOCIATION: Leningradskiy fiziko-tekhnicheskiy institut Akademii nauk SSSR
(Leningrad Physico-Technical Institute of the Academy of
Sciences, USSR)

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21(8)
AUTHORS: Kel'man, V. M., Metskhvarishvili, R. Ya., Preobrazhenskiy, B.K., Romanov, V. A., Tuchkevich, V. V.

TITLE: The Investigation of the Spectrum of Conversion Electrons of the Isotopes of Lutetium With Neutron Deficit (Issledovaniye spektra konversionnykh elektronov neytronodefitsitnykh izotopov lyutetsiya)

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1958, Vol 35, Nr 5, pp 1309-1310 (USSR)

ABSTRACT: The investigation of the radiation of greatly deformed nuclei furnishes material for the further development of the collective nuclear model. It is just from this point of view that the isotopes of lutetium are of interest. Recently several papers (Refs 1-4) have been published which deal with lutetium isotopes with neutron deficit, but the data given by these papers do not convey a clear idea of the decay of these isotopes. Additional investigations are therefore necessary. The authors of the present paper investigated the conversion spectrum of the isotopes of a lutetium fraction, which had been separated from a tantalum target irradiated with fast (660 MeV) protons. The method employed for separation has already been

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.The Investigation of the Spectrum of Conversion Electrons of the Isotopes
of Lutetium With Neutron Deficit

described (Ref 5). Measurements were carried out by means
of a prism-β-spectrometer and by means of a double-focusing
spectrometer. The spectrum of the conversion electrons con-
sists of many lines, which belong to Lu^{169} (half-life ~ 1.5 days),
Lu^{170} (~ 2 days), Lu^{171} (~ 8 days), Lu^{172} (~ 6.7 days),
Lu^{173} (~ 200 days). Belonging of lines to the various cor-
responding isotopes was determined from the half-life. A
table gives the energies of γ-transitions the conversion
lines of which decrease with the period ~ 1.5 to 2 days.
The second table contains the energies of the γ-transitions
with the period 6.7 to 8 days. The energy of these transi-
tions was determined from the energy of K- and L-conversion
lines. There are 2 tables and 6 references, 4 of which are
Soviet.

ASSOCIATION: Leningradskiy fiziko-tekhnicheskiy institut Akademii nauk
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Card 2/3   of Sciences USSR)

Kel'man, V.M., and S.Ya. Yavor

Elektronnaya optika (Electron Optics) Moscow, Izd-vo AN SSSR, 1959.   372 p.
   3,000 copies printed.

Sponsoring Agency: Akademiya nauk SSSR. Fiziko-tekhnicheskiy institut.

Ed.: L.A. Artsimovich, Academician; Ed. of Publishing House: Yu.K. Imshenetskiy;
   Tech. Ed.: A.V. Smirnova.

PURPOSE: The book is intended for students of electron optics.

COVERAGE: The book deals primarily with geometrical electron optics and does not
   discuss wave properties of electrons. In addition to the theory of focusing
   particle beams in fields with symmetry of rotation, the theory of focusing in
   electromagnetic fields with arbitrary space distribution is presented. Cylin-
   drical electron lenses and various kinds of deflection systems are discussed in
   detail. Much space is devoted to calculations of the motion of charged particles.
   The last two chapters are devoted to applications of electron optics. No per-
   sonalities are mentioned. There are 277 references, 119 Soviet (17 are transla-
   tions), 88 English, 48 German, 13 French, 3 Chinese, and 6 Scandinavian.
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